effect. Our current aims were to: (1) determine whether the benefits of brief coronary occlusion are manifest "at a distance" and attenuate platelet aggregation in *remote*, damaged and stenotic *carotid* arteries; and (2) obtain further indirect insight into the role of adenosine.

Methods: In 26 rabbits, both carotid arteries were isolated, the heart was exposed, and a marginal branch of the left coronary artery ensnared. Animals received 5 min coronary occlusion + 5 min reflow (known to trigger myocardial adenosine release: n = 8); 5 min occlusion of both carotid arteries + 5 min reflow (purported to cause negligible adenosine release from the brain: n = 6); or no intervention (n = 12). All rabbits then underwent injury + stenosis of the right carotid artery, resulting in cyclic variations in carotid blood flow (CFVs) due to repeated formation/dislodgement of platelet thrombi. Carotid flow was monitored for 2 h post-stenosis, and vessel patency assessed by quantifying the nadir of the CFVs and the area of the flow-time profile (expressed as a % of baseline flow x 120 min).

Results:

	Nadir of CFVs	% Flow-time Area
Control	1.5 ± 0.3 ml/min	44 ± 6%
Carotid occlusion	1.6 ± 3	38 ± 6%
Coronary occlusion	3.0 ± **	69 ± 5% *

Brief coronary occlusion improved subsequent carotid patency: the nadir of the CFVs was higher, and % flow-time area greater, versus controls (*p < 0.05; **p < 0.01). In contrast, brief carotid occlusion (which, as expected, elicited ≈no hyperemia) had no beneficial effect.

Conclusions: Brief myocardial – but not cerebral – ischemia attenuates platelet-mediated thrombosis in remote, damaged and stenotic rabbit carotid arteries, perhaps via release of adenosine from ischemic/reperfused myocardium.

1078-52 High Body Iron Stores Predisposes to Early Carotid Atherosclerotic Changes in B-Thalassemia Major Patients

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Background: High body iron stores have been proposed as a risk factor for advanced atherosclerosis. We investigated the relation of early carotid atherosclerotic changes to body iron status on B-Thalassemia major patients.

Methods: Intima-media thickness (IMT) of the common carotid artery (CCA) was evaluated by high resolution B-mode Ultrasonography (Biosound 2000 II Sa) in 40 B-Thalassemia major patients (mean age 15 ± 4 years). Our subjects were free from any known risk factors for cardiovascular disease. Body iron status was assessed by the mean serum concenration of ferittin in the last five years. The findings were compared with those obtained from 20 age and sex matched normal individual.

Results: IMT of CCA in B-Thalassemia patients was 0.773 ± 0.1 mm while in normal subjects was 0.54 ± 0.2 mm (p < 0.001). Mean serum level of ferittin in the last five years in the B-Thalassemia patients was 2950 ± 2260 ng/ml and in normal subjects was 105 ± 45 ng/ml (p < 0.001). There was a strong positive correlation between IMT of CCA and level of ferittin in B-Thalassemia group (r = 0.890).

In conclusion, the IMT of the CCA increased in proportion to the increased serum levels of ferittin. These data provide evidence that the body iron status plays an important role in the progress of atherosclerosis. However, further studies are required to investigate the effects of multiple blood transfusions to cerebrovascular complications associated with B-Thalassemia major patients.

1079 Heart Rate Variability

Monday, March 30, 1998, 3:00 p.m.–5:00 p.m.
Georgia World Congress Center, West Exhibit Hall Level
Presentation Hour: 4:00 p.m.–5:00 p.m.

1079-95 Heritability of Heart Rate Variability: The Framingham Heart Study

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Background: Reduced heart rate variability (HRV), a measure of cardiac autonomic tone, is associated with increased risk for cardiac events and mortality. In this study we estimated the heritability of HRV.

Methods: Subjects who underwent Holter recordings at a routine examination were eligible. After excluding subjects with congestive heart failure, coronary artery disease, diabetes mellitus and those taking cardioactive medications, we analyzed the standard deviation of normal RR intervals (SDNN), low frequency power (LF), high frequency power (HF), LF/HF ratio, very low frequency power (VLF) and total power (TP). Heritability analysis was done by studying correlations between siblings (n = 688, in 291 sibships) and between spouse pairs (n = 144 pairs). Adjustments were made for sex, age, systolic and diastolic blood pressure, coffee and alcohol intake.

Results: Siblings had higher correlations than spouses, consistent with heritable components for HRV (Table).

Variables	Sibling Correlation	Spouse Correction
Heart rate	0.23	0.10
SDNN	0.24	0.13
LF	0.21	0.07
HF	0.22	0.14
LF/HF	0.26	0.01
VLF	0.25	0.15
TP	0.25	0.17

Conclusion: Heredity may explain a substantial proportion of the variance in heart rate and HRV. Studies are currently underway to identify genetic loci linked to cardiac autonomic tone.

1079-96 Assessment of Autonomic Nervous System Function in Patients With Behçet's Disease by Heart Rate Variability

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Background: It is well known that there are some subclinical abnormalities of peripheral autonomic nervous system (ANS) in patients with Behçet's disease. Power spectral analysis (PSA) of heart rate variability (HRV) is a good noninvasive method that can also be used for evaluating the autonomic control of the heart. In this study we have investigated autonomic nervous function in patients with Behçet's disease by using power spectral analysis of heart rate variability.

Methods: 71 Behçet's patients with no obvious cardiac and autonomic neuropathic findings were enrolled in this study (40 female, 31 male, mean age 37 years, range: 21–56). The control group was composed of 15 women and 11 men with a mean age of 37 years (range: 24–54). HRV recordings were taken for 7 minutes from patients and controls in supine and on standing position. HRV was estimated by power spectral analysis method. Powers of low and high frequency components (LF and HF), coefficients of components variance (CCV2and CCV2), normalised powers of each spectral band (NP1 and NP2), and the ratio of P1/P2 were analysed.

Results: In supine position Behçet's patients had increased sympathetic and decreased parasympathetic component in heart rate variability analysis. In standing position increase in sympathetic activity and decrease in parasympathetic activity was higher than control group. Results are shown in table below:

	Behçet's Supine	Control Supine	P	Behçet's Standing	Control Standing	P
LF (msn²/Hz)	1129 ± 145	909 ± 94	0.004	1254 ± 249	1086 ± 215	0.000
CCV1 %	46 ± 16	39 ± 214	0.002	50 ± 21	42 ± 19	0.03
NP1 %	71 ± 12	52 ± 9.2	0.001	97 ± 7	64 ± 8.4	0.002
HF (msn²/Hz	425 ± 23	733 ± 80	0.000	55 ± 34	583 ± 17	0.000
CCV2 %	22 ± 11	31 ± 13	0.04	13 ± 6	26 ± 14	0.001
NP2 %	28 ± 9	45 ± 8	0.006	4 ± 2.3	35 ± 7	0.000
P1/P2	2.5 ± 1.09	1.2 ± 0.8	0.001	21.9 ± 7	1.8 ± 0.3	0.000

Conclusions: 1. Our data suggest that Behçet's patients may have asymptomatic autonomic nervous system dysfunction in the form of increased sympathetic and decreased parasymphatetic activity. 2. HRV may be used as a noninvasive method for assessment of autonomic nervous system dysfunction in patients with Behçet's disease.

1079-97 Spectral Analysis of Heart Rate Variability in Patients With Inappropriate Sinus Tachycardia

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The mechanism leading to an exaggerated response of the sinus node in the inappropriate sinus tachycardia (IST) is incompletely understood and may represent an abnormal autonomic response.

Methods: The study population comprised 05 patients (pt), 3 males, mean age of 25 ± 8 years. All pt underwent a Holter-24 hs recording. The tapes were subsequently analyzed and the following parameters were calculated: